



Better Back, Better Body™

Benefits of Inversion Therapy

Inversion therapy may be best known as a method to relieve back pain, however it is also a successful method to reverse other negative effects that gravity has on the body. Over time, gravity can contribute to problems with circulation, height loss, prolapsed organs and general body functions. Inversion can also be used as a proactive approach to help maintain overall health. Hanging upside down can help to stretch and relax muscles, reduce stress and tension, and provide healthy movement for ligaments.

Whatever your reason for inverting, Teeter Hang Ups® is quality, time-tested equipment to help you on your journey to a *better back, better body™*.

Inversion Helps to Relieve Back Pain

Inversion is actually a natural form of traction that uses your body weight in combination with gravity to decompress weight-bearing joints. While the body is rotated and suspended, gravity's force applies traction, resulting in a customized stretch that elongates the spine, increasing the space between the vertebrae¹, which relieves the pressure on discs and nerve roots. Less pressure means less back pain.

Since every nerve root leaves the spine through a space between the vertebrae, discs that are plump and contained in their ligament "wrappers" are necessary to keep the nerve roots free of pressure and your body free from pain. Inversion offers a system of stretching and exercise that helps to slow or reverse the harmful compression of the body by gravity.

How does it work? The Nachemson study² provides some insight: A number of volunteers permitted a pressure sensor to be surgically implanted inside the 3rd lumbar disc. The pressure inside the disc in the standing position was set at a base line of 100% and all other body positions compared to it. Sitting proved to be much harder on the back than standing, but the real surprise occurred while lying down. The pressure inside the disc only lost 75% of standing body weight – it never went below 25%! This residual compression seems to be due to the hundreds of ligaments and muscles that encase the spine, holding it in compression like a mass of rubber bands. This study further indicated that the amount of traction force required to overcome all the rubber bands was a large number, approximately 60% of your body weight. Inversion to an angle of about 60° is the only practical way to offset that much gravity force *while remaining relaxed*.

Inversion Helps Provide Care for the Discs

Your discs have three jobs: to separate the vertebrae, provide flexibility to the spine and to act as shock absorbers. Intervertebral separation is especially important since all communication between the brain and the body is via nerves that pass between each vertebrae. Insufficient distance between the vertebrae can result in nerve root pressure and pain.

The inner core of your discs is made of a jellylike material that provides the cushioning in your back. You can temporarily lose up to 0.5" - 0.75" (1.3-1.9 cm) in height daily during your waking hours from the compressive effects of gravity. Loss of height is largely due to loss of moisture from the discs, which results in loss of flexibility and cushioning effect. While inverted, you are able to reverse the downward pressure on your discs, helping the discs to recover faster, regaining lost moisture and lost height.

Inversion Helps to Relieve Stress and Muscle Tension

Stress and tension can cause muscle spasms in the back, neck and shoulders, as well as headaches and other problems. Tense muscles produce spasms and pain by restricting blood flow, which reduces the supply of oxygen to the muscles, and reducing lymph flow, allowing for an accumulation of waste chemicals. Inverting yourself to even as little as 25° for a few minutes can help relax tense muscles and speed the flow of lymphatic fluids which flush out the body's wastes and carry them to the blood stream. The faster this waste is cleared, and fresh supplies of oxygen are introduced, the faster stiffness and pain in the muscles can disappear. A study conducted by physiotherapist L.J. Nosse³ found that EMG (electromyographic) activity, an indicator of muscle pain, declined over 35% within ten seconds of inverting.

Inversion Helps Improve Circulation and Accelerates the Cleansing of Blood and Lymph Fluids

The cardiovascular system is your body's transportation system, carrying food and oxygen to your body's cells. Oxygen-rich blood from the lungs travels out through the arteries and waste-filled blood comes back through the veins to be cleansed and recharged with oxygen. Because your body must work against gravity to retrieve blood from your legs and lower torso, inversion can help to ease the circulation process by placing your body in a position that utilizes gravity's force in your favor.

Unlike the cardiovascular system, the lymphatic system has no pump. Only the alternate contraction and relaxation of muscles moves lymphatic fluid through capillaries and one-way valves to the upper chest for cleansing. Inverting the body so that gravity works with, not against, these one-way valves helps to push the lactic fluid up to the chest. The faster the lymphatic system is cleared the faster the ache and pain of stiff muscles disappears.

In her book Beyond Cellulite⁴, Nicole Ronsard discusses the role of the lymph system in creating cellulite, and ways in which people can help stimulate lymph flow to reduce cellulite. She explains that when the flow of lymph is slowed down,



The gentle reverse loading of joints can help to realign the body and improve posture.



Your own body weight in combination with the reversed pull of gravity gives your spine and weight-bearing joints much-needed decompression and helps discs to rehydrate.



The Aging Spine. Lost moisture in the discs translates to lost height and flexibility.

Benefits of Inversion

The experience of thousands of people who invert regularly is that it gives them the relief from back pain they've been looking for. Just as important, they gain the rejuvenating effects of inversion on the entire body, providing health benefits far beyond the relief of back pain. Inversion may help to:

Reduce back pain

Relieve stress

Stimulate circulation and lymph flow

Improve posture

Reduce muscle tension

Strengthen ligaments

Increase flexibility and range of movement

Reduce the effects of aging caused by gravity.

a stagnation of fluid occurs in the tissues. In areas where circulation tends to be poor and relies almost entirely on gravity to move it back up, as in the hip and thigh area, this stagnation encourages the formation of cellulite. By reversing gravity's force on the flow of blood and lymph fluids in the body, you can increase the nourishment of cells and accelerate the removal of wastes.

Inversion Helps Reduce the Effects of Aging Caused by the Force of Gravity

Achieve Functional Fitness: This term is defined as *a state of flexibility, strength and balance that supports youthful movement and activity*. Inversion is a way to keep joints healthy and flexible as the body ages, which translates to an active way of living throughout a lifetime.

Maintain Height: Most people will lose from 0.5" - 2" (1.3-5.1 cm) in height during their lifetime due to thinning discs⁵. As a baby, your discs are 90% water. However, the water content in the discs decreases to 70% by age 70. An active inversion program can help maintain more of your original height.

Decongest Internal Organs: As the body ages, internal organs (kidneys, stomach, intestines) begin to prolapse. Middle age spread, apart from weight gain, is due to the relocation of internal organs. Digestion and waste elimination problems are also common symptoms. Inversion helps these organs resume their normal shape and place in the body.

Increase Oxygen to the Brain: Your heart must work against gravity to pump blood up to your brain, which is the body's largest consumer of oxygen. Although it is only 3% of the body's total weight, the brain consumes 25% of the body's oxygen intake. Peter Russell notes in The Brain Book⁶ that the deterioration of the brain is not directly linked to age alone. Rather, this deterioration is caused by hardening arteries and high blood pressure, both of which decrease the supply of oxygen to the brain. Thus a major step in reducing mental deterioration over time may simply be increasing the oxygen supply to the brain. (NOTE: If you have high blood pressure, consult your physician before starting an inversion program.)

Relieve Varicose Veins: When inverting, you are helping your heart to clear the blood from your feet, legs, and lower body. This allows the blood in your limbs to circulate more easily, which may help to drain blood from varicose veins.

BENEFITS FOR ACTIVE PEOPLE:

Inversion Enables the Body to Stretch and Align Itself

Nearly every physical activity involves some form of compression of the spine. The compressive effect of gravity is compounded by activities such as running, weightlifting and aerobics, which can exact an incredible toll on your back. One-sided activities like golf and tennis can be particularly troublesome because the strong-side muscle groups that develop while performing such activities pull the spine out of alignment, and these one-sided activities usually involve rotation of the spine, often under incredible loads. Still other physical activities, like bicycling and rowing, tend to create tension in the muscles due to a contraction of the major muscle groups for long periods of time. Even simple daily activities, if performed in the wrong



way, can create skeletal misalignments. Most often these misalignments are nominal and will readily correct themselves given the opportunity. Inversion with movement (such as side-to-side bends and back arches) provides that opportunity.

Inversion Can Help with Workout Recovery

The process of building muscle occurs when muscle fibers are torn down and replaced with more and better cells. After a workout, thousands of destroyed cells need to be trucked away to make room for new growth. Inversion helps to increase lymph flow, which gets rid of the wastes more rapidly and allows the body to focus on building new muscle tissue.

Athletes prone to stiffness or muscle spasms after a workout can benefit from the lymphatic wash provided by inversion. Intense muscle activities cause a build up of large amounts of lactic acid and carbon dioxide, which results in sore muscles. The faster this waste is cleared, the faster the pain and stiffness disappear.

During a high-impact workout, your joints and especially discs will lose fluid, resulting in a temporary height loss of up to 0.5" - 0.75"! Inversion has been proven to increase intervertebral separation, which reduces the pressure on the discs and helps them to re-hydrate. Decompressed joints are able to recover faster for better shock absorption and reduced pain.

Inversion Helps Strengthen Ligaments

Ligaments are fibrous, collagen-filled strips of tissue that hold your bones together. Ligaments are flexible but not very elastic, and can tear when they endure sudden strain or are stretched too far. Mobilization and gentle loading of ligaments can help to increase the collagen content of the tissue, which results in increased ligament strength⁷. Inverted stretching and exercise provides gentle reverse loading and mobilization of the spine and weight-bearing joints, helping to strengthen the fibrous structure encasing these joints. Strong ligaments and muscles are vital for proper joint support, helping to protect the athlete from injury.

A Final Thought

The constant pull of gravity has the single most harmful effect on the joints and spinal discs. Used sensibly, inversion is extremely beneficial, and no more dangerous than many other popular and widely practiced fitness activities. Sometimes there's an explanation for why inversion works and sometimes there isn't.

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(Footnotes)

- ¹ Kane, M, et al: Effects of Gravity-facilitated Traction on Intervertebral Dimensions of the Lumbar Spine. *Journal of Orthopedic and Sports Phys Ther.* 281-288, Mar 85
- ² Nachemson, A and Elfstrom, G: Intravital Dynamic Pressure Measurements in Lumbar Discs. *Scandinavian Journal of Rehab Medicine*, supplement, 1970.
- ³ Nosse, L.: Inverted Spinal Traction. *Arch Phys Med Rehabil* 59: 367-370, Aug 78.
- ⁴ Ronsard, N. *Beyond Cellulite*, p 12, 146. New York: Villard Books, 1992.
- ⁵ Tanner, J. *Beating Back Pain*. London: Dorling Kindersley, 1987.
- ⁶ Russell, Peter. *The Brain Book*. New York: Hawthorne Books Inc., 1979.
- ⁷ "BME/ME 456 Biomechanics: Structure and Function of Ligaments and Tendons" <http://www.engin.umich.edu/class/bme456/ligten/ligten.htm>

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